AMENDMENTS

Listing of Claims

The following listing of claims replaces all previous listing or versions thereof:

1. (Previously presented) A DNA segment comprising a protein coding region encoding an Osterix polypeptide, wherein said polypeptide comprises a transactivation domain, a zinc finger domain and a proline rich domain.

2. (Canceled)

3. (Original) The DNA segment of claim 1, wherein said transactivation domain comprises an amino acid sequence from between position 27 and position 270 of SEQ ID NO:2.

4-5. (Canceled)

6. (Original) The DNA segment of claim 1, wherein said zinc finger domain comprises an amino acid sequence from between position 290 and position 374 of SEQ ID NO:2.

7-8. (Canceled)

9. (Original) The DNA segment of claim 1, wherein said proline rich domain comprises an amino acid sequence from between position 27 and position 192 of SEQ ID NO:2.

10. (Canceled)

11. (Original) The DNA segment of claim 1, wherein said Osterix polypeptide is further defined as having the sequence of SEQ ID NO:2.

12. (Previously presented) The DNA segment of claim 1, wherein said zinc finger domain is 77.6% homologous with transcription factor Sp-1.

13. (Previously presented) The DNA segment of claim 1, wherein said zinc finger domain is 69.4% homologous with transcription factor Sp-2.

14. (Previously presented) The DNA segment of claim 1, wherein said zinc finger domain is 77.8% homologous with transcription factor Sp-3.

15. (Previously presented) The DNA segment of claim 1, wherein said zinc finger domain is 77.8% homologous with transcription factor Sp-4.

16. (Canceled)

17. (Original) The DNA segment of claim 1, wherein said DNA segment comprises a contiguous nucleic acid sequence from SEQ ID NO:1.

18. (Original) The DNA segment of claim 1, encoding an Osterix protein of 428 amino acids in length.

19. (Original) The DNA segment of claim 1, wherein the Osterix coding region is positioned under the control of a promoter.

20. (Original) The DNA segment of claim 19, wherein said promoter is a recombinant promoter.

21. (Original) The DNA segment of claim 19, further defined as a recombinant vector.

22. (Original) A recombinant host cell comprising a DNA segment of claim 1.

23. (Original) The recombinant host cell of claim 22, further defined as a prokaryotic host cell.

24. (Original) The recombinant host cell of claim 23, wherein the prokaryotic host cell is a bacterial host cell.

25. (Original) The recombinant host cell of claim 24, wherein the bacterial host cell is *E. coli*.

26. (Original) The recombinant host cell of claim 22, further defined as a eukaryotic host cell.

27. (Original) The recombinant host cell of claim 26, further defined as an osteoblast.

28. (Original) The recombinant host cell of claim 27, wherein said osteoblast is a BMP2-treated C2C12 cell.

29. (Original) The recombinant host cell of claim 26, further defined as a mesenchymal precursor cell.

30. (Original) The recombinant host cell of claim 22, wherein the DNA segment is introduced into the cell by a recombinant vector comprising a DNA segment encoding an Osterix polypeptide positioned under the control of a promoter.

31-47. (Canceled)

48. (Original) An expression cassette comprising a polynucleotide encoding a polypeptide having the sequence of SEQ ID NO:2, wherein said polynucleotide is under the control of a promoter operable in eukaryotic cells.

49. (Previously presented) The expression cassette of claim 48, wherein said promoter is heterologous to the polynucleotide encoding a polypeptide having the sequence of SEQ ID NO:2.

50. (Original) The expression cassette of claim 48, wherein said promoter is a tissue specific promoter.

51. (Original) The expression cassette of claim 48, wherein said promoter is an inducible promoter.

52. (Original) The expression cassette of claim 48, wherein said expression cassette is contained in a viral vector.

53. (Original) The expression cassette of claim 52, wherein said viral vector is selected from the group consisting of a retroviral vector, an adenoviral vector, and adeno-associated viral vector, a vaccinia viral vector, and a herpesviral vector.

54. (Original) The expression cassette of claim 48, wherein said expression cassette further comprises a polyadenylation signal.

55. (Original) A cell comprising an expression cassette comprising a polynucleotide encoding a polypeptide having the sequence of SEQ ID NO:2, wherein said polynucleotide is under the control of a promoter operable in eukaryotic cells, said promoter being heterologous to said polynucleotide.

56-77. (Canceled)